CANADA'S CENTRE FOR DIGITAL AND MEDIA LITERACY

Digital Literacy Fundamentals

> This section looks at the various aspects and principles relating to digital literacy and the many skills and competencies that fall under the digital literacy umbrella. The relationship between digital literacy and digital citizenship is also explored and tips are provided for teaching these skills in the classroom.

Introduction

Today's youth are often called "digital natives" by adults because of the seemingly effortless way they engage with all things technological. It's easy to see why: young Canadians live in an interactive, "on demand" digital culture where they are used to accessing media whenever and wherever they want. Instant-messaging, photo sharing, texting, social networking, video-streaming and mobile Internet use are all examples where youth have led the charge in new ways of engaging online.

But this enthusiasm masks a potential problem: although young people don't need coaxing to *take up* Internet technologies and their skills quickly improve *relative to their elders*, without guidance they remain *amateur users* of information and communications technology (ICT), which raises concerns about a generation of youth who are not fully digitally literate, yet are deeply immersed in cyberspace. Therefore, "it is not… enough to assume that young people automatically have all of the skills, knowledge and understanding that they need to apply to their use of technology. All young people need to be supported to thrive in digital cultures; they need help making sense of a rapidly changing world of technology which gives them access to vast amounts of information, which is infused with commercial agendas and which for many reasons can be difficult to interpret."[1]

In order to be literate in today's media-rich environments, young people need to develop knowledge, values and a whole range of critical thinking, communication and information management skills for the digital age. As increasing numbers of businesses, services and even democratic processes migrate online, citizens who lack digital literacy skills risk being disadvantaged when it comes to accessing healthcare, government services and opportunities for employment, education and civic participation.[2] Nor is digital literacy confined to the parts of the curriculum that traditionally deal with technology: "Digital literacy is as much a key part of learning about history and learning how to study history, and learning about science and learning how to study science, as it is about learning about ICT and learning the skills of using ICT. Indeed, possessing digital literacy is an important set of life skills to complement and extend the skills and knowledge already taught in school."[3]

A basic question, then, is what exactly *is* digital literacy?

This section looks at the various aspects and principles relating to digital literacy and the many skills and competencies that fall under the digital literacy umbrella.

- **What is Digital Literacy?**
- **Key Concepts for Digital Literacy**
- **Where does "Digital Citizenship" Fit In?**
- **Fostering Digital Literacy in the Classroom**
- **Digital Literacy Across the Curriculum**

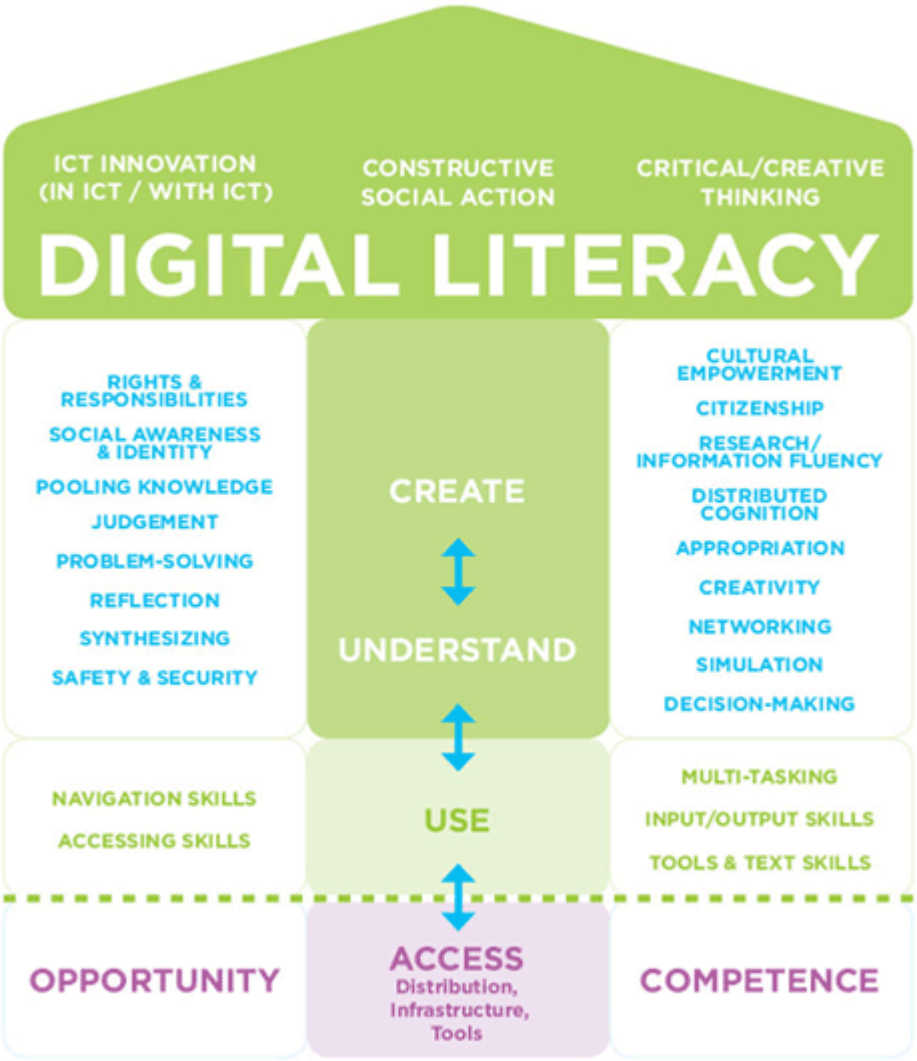
What is Digital Literacy?

Digital literacy is more than technological know-how: it includes a wide variety of ethical, social and reflective practices that are embedded in work, learning, leisure and daily life.

Globally, the International Society for Technology in Education (ISTE) frames its benchmarks for digital literacy around six standards: creativity and innovation; communication and collaboration; research and information fluency; critical thinking, problem solving and decision making; digital citizenship; and technology operations and concepts.[4]

Digital Literacy Model

This model[5] illustrates the many interrelated elements that fall under the digital literacy umbrella. These range from basic access, awareness and training to inform citizens and build consumer and user confidence to highly sophisticated and more complex creative and critical literacies and outcomes.[6] There is a logical progression from the more fundamental skills



towards the higher, more transformative levels, but doing so is not necessarily a sequential process: much depends on the needs of individual users.

Use, Understand, Create

Traditional definitions of literacy have focused on skills relating to numeracy, listening, speaking, reading, writing and critical thinking, with the end goal being developing active thinkers and learners who are able to engage in society in effective and meaningful ways.[7] These skills are needed for full participation in digital society as well, but they are only part of a larger set of skills and competencies that are required.

Competencies for digital literacy can be classified according to three main principles: *Use, Understand and Create*.

Use represents the technical fluency that's needed to engage with computers and the Internet. Skills and competencies that fall under "use" range from basic technical know-how – using computer programs such as word processors, web browsers, email and other communication tools – to the more sophisticated abilities for accessing and using knowledge resources, such as search engines and online databases, and emerging technologies such as cloud computing.

Understand is that critical piece – it's the set of skills that help us comprehend, contextualize, and critically evaluate digital media so that we can make informed decisions about what we do and encounter online. These are the essential skills that we need to start teaching our kids as soon as they go online.

Understand includes recognizing how networked technology affects our behaviour and our perceptions, beliefs and feelings about the world around us.

Understand also prepares us for a knowledge economy as we develop – individually and collectively – information management skills for finding, evaluating and effectively using information to communicate, collaborate and solve problems.

Create is the ability to produce content and effectively communicate through a variety of digital media tools. Creation with digital media is more than knowing how to use a word processor or write an email: it includes being able to adapt what we produce for various contexts and audiences; to create and communicate using rich media such as images, video and sound; and to effectively and responsibly engage with Web 2.0 user-generated content such as blogs and discussion forums, video and photo sharing, social gaming and other forms of social media.

The ability to *create* using digital media ensures that Canadians are active contributors to digital society. Creation – whether through blogs, tweets, wikis or any of the hundreds of avenues for expression and sharing online – is at the heart of citizenship and innovation.

As Douglas Belshaw puts it, "Digital literacies are transient: they change over time, may involve using different tools or developing different habits of mind, and almost always depend upon the context in which an individual finds herself."[8] Given how quickly and frequently our media world is evolving, developing and maintaining one's digital literacy is a lifelong process.

The specific skills that are needed will vary from person to person depending on their needs and circumstances – which can range from basic awareness and training to more sophisticated and complex applications. What remains constant, however, are the *key concepts* that apply to all networked media and are relevant to students – and adults – at all ages.

Key Concepts of Digital Literacy

MediaSmarts' conception of digital literacy incorporates the five **key concepts of media literacy(http://mediasmarts.ca/digital-media-literacy/general-information/digital-media-literacy-fundamentals/media-literacy-fundamentals)** (Media are constructions; Audiences negotiate meaning; Media have commercial implications; Media have social and political implications; and Each medium has a unique aesthetic form) and supplements them with five more key concepts that reflect the added dimension of networked interactivity. These key concepts of digital literacy apply to traditional media as well, with the difference being that while the aspects they describe are relatively rare in traditional media, they are dominant in digital media. Communicating these concepts is essential for enabling students to transfer their learning to different contexts: for example, teaching students to authenticate information for assignments may motivate them to do this for schoolwork, but they may not see the need to do so in other situations. When young people understand how the networked nature of digital media makes it possible for anyone to create online content, however, this helps them to understand why this is important.

As with the key concepts of media literacy, key concepts for digital literacy are essential both in providing a common language for theorists and educators and in being a guiding principle for teachers in a rapidly changing technological landscape. Whatever the topic, tool or platform, the purpose of digital literacy education is to communicate these key concepts to students in a way that's appropriate to their age and context.

1. Digital media are networked.

Unlike traditional media, there are no one-way connections in digital media. In traditional media, content only flowed one way: producers created it, then sold or licensed it to distributors who then brought it to you. In digital media, by contrast, you're no longer the final link in a distribution chain but a node in the middle of an infinite network. You can share content with other people as easily as a producer or distributor shares it with you. Collaboration and dialogue are the norm, rather than solitary creation and broadcasting.

These links are always at least two-way, even if you're not aware of the ways you're sending data. This means that everyone and everything is linked to everything else. As a result, the barriers to participation are much lower than in traditional media and anyone can publish content and find an audience. This means that users can interact with peers and celebrities at the same time, and also has important implications when we need to authenticate information or recognize a source's bias and point of view. The networked nature of digital media also makes it possible for formal and informal communities to develop online, whose norms and values are created by their members.

2. Digital media are persistent, searchable and shareable.

Digital content is permanent: everything that is transmitted is stored somewhere and can be searched for and indexed. When considered together with the concept that digital media are networked, this means that most of this content can also be copied, shared or spread at a trivial cost. Even things that are apparently temporary (like Snapchat photos) can be copied, and are almost always stored on the platform's servers.

Because it's persistent, digital content is mostly consumed asynchronously: we typically react or reply to something at a time other than when it's posted, and reactions to our reaction will also come at a later, usually unpredictable time. This can make digital media hard to turn off, since a reaction – or a chance for us to respond to something – may come at any time.

3. Digital media have unknown and unexpected audiences.

Because digital media are networked and digital content is shareable, what you share online may be seen by people you didn't intend or expect to see it. Your ability to control who sees what is limited: both content creators and traditional gatekeepers and distributors have much less power to control what happens to it once it's posted. This can make it difficult to manage audiences, and there is always a risk of context collapse when what was intended for one audience is seen by another. As well, you may be sharing content that you're not aware of with audiences you don't know about, such as cookies and other tracking tools that record information about who you are and what you do when you visit a website.

4. Digital media experiences are real, but don't always feel real.

Being networked means that all digital media are, to at least a certain extent, interactive: we are never just passive viewers but always a part of what's happening. Because it's interactive we often respond to things online as though we are really there, but most of the cues that tell us how we and others feel are absent. One result of this can be "empathy traps," features of networked interaction – such as a feeling of being anonymous, or the absence of cues such as tone of voice or

facial expressions in the people we interact with – that prevent us from feeling empathy when we normally would, and these traps can make us forget that what we do online can have real consequences. For the same reasons, it can be very difficult to determine someone's actual meaning and motivation when interacting with them online, a phenomenon popularly known as "Poe's Law."

Partly because of this, and also because of the lack of physical presence online (we may not even entirely feel we're "in" our bodies, as we're usually sitting and immobile when using digital media), it's easy to forget that laws, morals and rights still apply online. The norms and values of the online communities we're part of can also affect our own personal norms and values, as the values of our offline communities do.

Taken together with the lowered barriers to publication discussed above, this can also mean that the people and images we interact with online affect us as much or more than images in traditional media because they are (or seem to be) our peers. The images of ourselves we create online have an extra impact on us because they embody who we imagine (or wish) ourselves to be.

5. How we respond and behave when using digital media is influenced by the architecture of the platforms, which reflects the biases and assumptions of their creators.

One of the most fundamental insights of media literacy is that the form of a medium influences how we "read" or experience a text. While this remains true in digital media, the network effect means that the architecture of a platform – everything from the user interface we interact with to the algorithms that determine how it delivers content to us – affects not just the meaning and message of digital media but also our own behaviour when using them. On the most fundamental level, for example, the networked nature of digital media creates a centripetal effect, as hyperlinks encourage us to move to other texts and platforms. danah boyd describes this architecture in terms of "affordances," which "do not dictate participants' behavior, but they do configure the environment in a way that shapes participants' engagement."[9]

As with traditional media, these influences are not natural or neutral: they reflect the beliefs, unconscious biases and unquestioned assumptions of their creators. Sometimes these values will be consciously applied: if a platform's designers consider freedom of speech their top priority, then protections from hate speech and harassment will be an afterthought at best – which will influence who feels free to speak and what kinds of conversations happen. But unconscious attitudes can be at play, too, such as an "engineering mindset" that sees no problem with showing different job listings for Black and White users, or with delivering an ever-narrower feed of news that you're sure to agree with if that's the most efficient and effective way to advertise to you. As is almost always the case, commercial considerations are also key: a platform that makes money from user engagement will naturally encourage interactions that produce the most intense engagement, no matter the content or tenor of those interactions.

There is often an interplay between the influence of platforms and users' own needs, as can occur in traditional media as well. Teens may choose to post casual photos on Snapchat and more formal ones on Instagram, for instance, based on how they see the two platforms serving their purposes differently, but they are also being influenced by the structure of those platforms: Snapchat, where photos are temporary by default, creates an expectation of being casual and "fun," while Instagram's persistent feed promotes the careful maintenance of a public-facing profile.

Where Does "Digital Citizenship" Fit In?

Digital Citizenship is "character education" in a networked world. As one teacher puts it:

> *One of the big mission statements and themes of our school is building character today for communities of tomorrow, so we are always tying things back into good character and how we want to be perceived by others; how we want to treat others; and how we want others to treat us… technology provides one more way to teach it, one more way to make it relevant to students.*[10]

Being a critically engaged user and consumer of media is an essential part of active citizenship in the 21st century: we use media to inform ourselves, to help shape our opinions, to interact with our communities and to make our voices heard.

Models for digital citizenship are generally framed around elements such as rights and responsibilities, participation or civic engagement, norms of behaviour or etiquette, and a sense of belonging and membership.[11]

Digital citizenship is closely aligned to civics in a traditional sense, where understanding digital media and being able to use it is becoming a vital part of active citizenship. As media messages dominate our political debates and tools such as Facebook and Twitter are used for activism and organizing political movements around the world, it's increasingly important for young people to be able to view media critically and be prepared to be engaged *digital citizens* who contribute to their communities in a positive way. To do so, they need the full range of skills we associate with media *and* digital literacy to be able to know

and exercise the rights they hold as consumers, as members of online communities, as citizens of a state and as human beings.

Fostering Digital Literacy in the Classroom

Many teachers are using technology in their classrooms to support different learning styles and to engage students: what's missing are guidelines to help them do this in ways that promote innovative thinking and collaborative work, promote ethical practices, and strengthen their own professional development.

Teachers interviewed by MediaSmarts identified several key factors that limit the ability of educators to help students build digital literacy skills. They also offered some solutions to these problems, including the need to:

- provide students with authentic learning opportunities that are enhanced through technological tools;
- position teachers as facilitators and co-learners, instead of "drill and kill" experts;
- focus teacher training on how to use technology to enhance learning and meet curricular outcomes; and
- create reasonable policies and less restrictive filters in schools so that teachers can better help students develop and exercise good judgement.[12]

Technology has shifted the traditional classroom paradigm that positions the teacher as the expert. This can be hard for many educators to accept, but it's not necessarily a bad thing. In our quickly evolving technological world, we are all learners, and teachers who are willing to share responsibility with students are more likely to be comfortable – and effective – in a networked classroom.

This is where our education system can benefit from models in the youth engagement sector, where young people are acknowledged as decision-makers, partners and agents of social change, and adults assume the role of trusted guides and lifelong learners alongside youth.[13]

One of the supporting principles of Manitoba's *Continuum Model for Literacy with ICT* is the gradual release of responsibility from teacher to student.[14] According to this principle, teachers act as facilitators and guides who provide scaffolding to help students develop higher-level critical and creative thinking and deeper understanding relating to ICT as they gradually become more autonomous users of networked technology.[15]

This principle fits well into effective programs for digital literacy and digital citizenship that:

- are holistic, building links between school, home and the community and taking into account both online and offline opportunities for engagement and empowerment;
- are evidence-based;
- are proactive, as opposed to reactive;
- position digital technology as a right *and* a responsibility;
- reinforce positive and pro-social uses of technology;
- provide a wide range of tools and resources;
- focus not just on safety, but also on the whole range of digital literacy skills and competencies;
- are built upon traditional aspects of character and moral education as well as a broader interpretation of civics education;
- are child-centred and youth-led – building on the reality of young people's lives and providing real and authentic experiences;
- foster a gradual release of responsibility towards independent practice by youth – working *with* youth in building resilience, finding solutions and promoting positive engagement with technology; and
- position adults as supportive mentors and facilitators.

MediaSmarts has drawn on the work of academics and educators across the country to develop a **curriculum framework** to ensure that students from Kindergarten to Grade 12 can receive a comprehensive digital literacy education. This framework consists of lessons, classroom activities and other teacher resources that translate the five key concepts into specific digital literacy skills that are essential for each grade level. These skills are grouped into seven categories:

Ethics and Empathy: This category addresses students' social-emotional skills and empathy towards others as well as their ability to make ethical decisions in digital environments when dealing with issues such as cyberbullying, sharing other people's content and accessing music and video.

Privacy and Security: This includes essential skills for managing students' privacy, reputation and security online, such as making good decisions about sharing their own content, understanding data collection techniques, protecting themselves from malware and other software threats, and being aware of their digital footprint.

Community Engagement: Resources in this category teach students about their rights as citizens and consumers, and empower them to influence positive social norms in online spaces and to speak out as active, engaged citizens.

Digital Health: Digital health skills include managing screen time and balancing students' online and offline lives; managing online identity issues; dealing with issues relating to digital media, body image and sexuality; and understanding the differences between healthy and unhealthy online relationships.

Consumer Awareness: These skills allow students to navigate highly commercialized online environments. They include recognizing and interpreting advertising, branding and consumerism; reading and understanding the implications of website Terms of Service and privacy policies; and being savvy consumers online.

Finding and Verifying: Students need the skills to effectively search the Internet for information they need for personal and school purposes, and then evaluate and authenticate the sources and information they find.

Making and Remixing: Making and remixing skills enable students to create digital content and use existing content for their own purposes in ways that respect legal and ethical considerations, and to use digital platforms to collaborate with others.

Browse our **digital literacy curriculum framework**.

Digital Literacy Across the Curriculum

Digital education has a place in nearly every course and subject. You can see our **Curriculum Charts** to get specific information on how each of our lessons and resources meets the curriculum of different courses in your province or territory. Here are some ideas to get you started:

English Language Arts: This subject is where media literacy expectations have most often been found, and those apply to digital media as well. Some of the most important implications of our key concepts – like the idea that anyone can publish online – make traditional media literacy skills more important than ever, but also require more up-to-date ways of recognizing advertising, for example, and the ways that we're susceptible to bias.

Digital tech also provides enormous opportunities for creative media production. We need to take advantage of those opportunities, while also making sure that our students understand the ethical issues involved in it – as well as their own rights as media creators.

Social Sciences: Finding and verifying information is at the heart of social science. Teachers can explore the use of the Internet for research, including access to uncensored information and alternative news sources. As with English, students can also learn to distinguish bias, misinformation and propaganda in online content. In more advanced classes like anthropology and psychology, students can learn how the values of their online communities are shaped and how the features of online environments shape our behaviour.

Civics: Digital platforms are the new arena for both online and offline civic participation, and digital technology also offers students a chance to participate as full citizens in a way that they can't offline. Teaching them to be an active part of their online communities – as well as to use digital tools to be involved offline – is essential to prepare them to be fully engaged citizens when they're older.

Careers: Students will need to learn that what they post online might be around for a long time – and that they have some control over whether that reflects well or poorly on them. As well, digital literacy skills such as communicating clearly, collaborating remotely and managing information will be some of the most important and longest-lasting job skills when students graduate.[16]

Health and Personal Development: Because digital tech is so central to young people's lives, no subject may need to integrate digital literacy more than health. Traditional health topics like body image and sexual health education need to incorporate digital literacy key concepts, as well as digital health issues such as "fear of missing out" that are caused by persistence, shareability and asynchronous communication.

Young people's self-image is influenced by the photos of their peers – and themselves – that they select, and often edit or manipulate, so carefully. As well, the line separating them from the celebrities they admire – whose images are very definitely Photoshopped – is largely gone, as they all participate in the same platforms like Instagram. Beyond just body image, young people need to be able to ask questions about the ideals of masculinity and femininity that they feel pressured to fit into on social media.

Young people's health can also be affected by some of the features of digital media like persistence and shareability, which can make it very hard to log off and give the haunting feeling of "fear of missing out" – the idea that your friends are having a good time online without you.

Finally, students need to understand some of the effects we've discussed that digital media can have on relationships, as well as how to deal with them, and to understand how ideas like respect and consent apply in the online context.

The Arts: As more and more artistic production is created or distributed through digital media, arts courses also need to reflect the impacts of digital technology, such as how platform architecture influences aesthetics and self-presentation, and the effects of networked technology on arts industries and communities. The Internet has definitely been a mixed blessing for most arts industries, but students need to understand those changes – and be able to see what changes are coming – if they're considering careers in the arts.

Technology and ICT: Technology courses themselves need to adopt a wider view of digital literacy and go beyond a focus on technical skills – which are likely to be obsolete within a few years after students graduate – to a more critical understanding of digital technology, and should expand from a focus on *using* technology to include understanding and creating as well.

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